Earthrise +50

Apollo 8, Mead, Gore and Gaia

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for Roy Wagner

'Hey, don't take that, its not scheduled'. Fifty years ago, NASA[1] astronaut Bill Anders ignored his commander's jest and went ahead and took 'arguably the most iconic photograph of the 20th century' (Chaikin 2018), 'the most influential environmental photograph ever taken' (Rowell quoted in Zimmerman 1998: 242) (see front cover). As Al Gore describes (2006: 12), 'the image exploded into the consciousness of humankind' and within two years, 'the modern environmental movement was born', including the first Earth Day in 1970 at which Margaret Mead declared that now, the 'human race held its own life in its own hands'.

Of course, this much had been apparent since 1945 when nuclear weapons were first used and through growing cold war tensions, also played out through a race for the moon, which 'was an alternative to war' (Aldrin 1989: xxi). Tensions came to a head in the 1962 Cuban missile crisis (during which Mead played a small cameo role – see Cousins 1972: 14). In 1963, President Kennedy's 'peace speech' promised an end to atmospheric nuclear testing and included the line 'we all breathe the same air', marking an important chapter for the atmosphere as a political entity. Kennedy's moon shot and the subsequent Apollo missions were controversial and contested throughout the US space programme (e.g. McDougall 1985; Tribbe 2014). As Mead noted (following Apollo 8 and before Apollo 11's moon landing), people were asking 'Why go to the moon? Why spend all that money on a space program that will change no one's daily life and solve none of the problems of human misery on earth?' ([1969] 2005: 248).

Even the priorities of Kennedy's own secretary for the interior, the unsung Stewart Udall, were closer to home (see e.g. Udall 1963, 1964). Long before Apollo 8, the moon missions became entwined with terrestrial concerns (e.g. Ward 1966) and were quickly overtaken by them (cf. Geppert 2018). As Tribbe describes, 'By 1970, a solid majority of Americans returned to their prelanding belief that it was not worth the money it had cost', and though this is not 'the memory most Americans hold today … this kinder view of Apollo and the 1960s space program is more of a modern phenomenon than a long-standing legacy of the endeavor' (Tribbe 2014: 10).

Endings and beginnings

Since before the first moon landing in 1969, then, anthropologists have taken an increasing interest in the astronautical legacies and emergent phenomena of space exploration and epistemological reconceptualization (e.g. Battaglia 2005; Battaglia et al. 2015; Olson 2018; Valentine et al. 2009).

On 24 December 1968, at 9.37am in Houston, 75 hours, 47 minutes and 30 seconds into Apollo 8's first manned voyage to the moon, as the spacecraft performed a roll during its fourth orbit, something both long anticipated and yet wholly unexpected popped up in the spacecraft's window. 'Oh, my God! Look at that picture over there! Here's the earth coming up. Wow, is that pretty!' That we might now be surprised by Anders' surprise is testament to the impact of Apollo 8's moments of eye witness – including the famous Christmas Eve broadcast which closed with the words of Genesis – in ending the world as it was once known and in creating a world whose endings have become vividly apprehendable anew (e.g. Gore 1992; McKibben 1990; Mead & Heyman 1975 and most recently, Danowski & Viveiros de Castro 2017; Latour 2015).

Notwithstanding the 50th anniversary of 'earthrise' (Fig. 1) also being marked by warnings of a 'sixth mass extinction' and reports that global wildlife populations have decreased by 60 per cent since 1970 (WWF 2018), Anders' photograph has 'given the world a picture to think with' (Poole 2008: 198) and has become an icon for the Anthropocene (cf. Oliver 2013: 126). Apollo 10 was fully equipped with a Col-R-Tel 'illusion generator' colour TV camera with which to perfectly capture the moving images of 'earthrise', which have long accompanied transcendental hopes of ecological transformation due to a cognitive 'overview effect' (Lazier 2011; White 1987). These days, such pictures to think with are provided by NASA's DSCOVR observatory – a kind of 24/7 webcam – launched in 2015 and first proposed by Al Gore in 1998: 'GoreSat' provides a continuous God's-eye view of the whole earth from the Lagrange Point 1 stable gravitational orbit nearly a million miles away.[2] Clearly, 'earthrise' has demonstrated that culturalist ideas are part of the ecology and not separate from it (cf. Chakrabarty 2009).

'Earthrise' involves learning to see all at once. Alongside reflecting on Apollo 8's significance as a cultural turn, the enduring effects of 'earthrise' are discussed here through brief vignettes of Margaret Mead's 'macroscope' and Al Gore's 'holography' as provocative perceptual devices for remaking our image of being human in radically new ways – and as foils to an equally provocative alternative Pacific vision. A further ambition here is to reflect on how 'earthrise' may have shaped anthropological concerns and thinking, and to bring both Mead and Gore into the anthropological conversation delineated by Chakrabarty (2009), Latour (2015) and Danowski and Viveiros de Castro (2017).

'Earthrise' may be one of the most famous images in history, but it had a difficult birth, delivered 'sideways, upside-down, and at an angle'. For Apollo 8 was orbiting the moon's equator with the lunar horizon running vertically: 'Earth had not exactly "risen" but had appeared around the left side of the Moon' (Poole 2008: 30, 29). And having caught a glimpse and captured a black and white photograph (AS08-13-2329) from one window, Apollo 8 continued its roll and earth promptly disappeared from view, before reappearing in another window – by which time, a scramble for a colour film magazine allowed Anders to capture the more famous photographs (AS08-14-2383 & AS08-14-2384). Through unworldly disorientations, clamourings for film, chains of command and claims of retrospective memory, the identity of Anders as the photographer responsible for all three 'pure, awesome, even holy' images was only confirmed by Chaikin decades later, with the whole story only told earlier

this year (Chaikin 1994: 134, 2018), supported by simulation of flight data coordinates, recent mapping images and Apollo 8 photographs of the lunar surface.[3]

And yet, Apollo 8's photographs of the earth taken from the outside were hardly the first, for even the momentous vision of 'earthrise' had been photographed before: NASA's 1966 Lunar Orbiter Probe 1 photographed an 'earthrise' in monochrome (67-H-218), providing a frontispiece to Al Gore's (2009) *Our choice: A plan to solve the climate crisis*. In 1967, the US ATS-3 satellite took a colour 'whole earth' photograph (153107), and in 1968 in the months preceding Apollo 8, the Soviet Zond 5 carried a variety of life forms into lunar orbit and photographed the earth from 90,000 km away, whilst Zond 6 followed by photographing an 'earthrise'.

For all their subsequent iconic fame, then, Apollo 8's photographs were not the first – and nor were they beyond imagination (cf. Brunner 2010; McCurdy 2011). Cosgrove describes how the 'meanings of the photographed earth were anticipated long before the photographs themselves were taken', and how 'for all its radical newness, actually witnessing the globe culminates a long genealogy of imagining and reflecting upon the possibility of doing so' (Cosgrove 2001: ix). Indeed, Poole's history of *Earthrise: How man first saw the earth* provides a timeline of these imaginings from Plato to Al Gore (Poole 2008: xiii-xvi). Zimmerman's (1998) *Genesis: The story of Apollo 8* carries an epigraph to Hoyle's 1948 prediction that 'Once a photograph of the Earth, taken from outside, is available…a new idea as powerful as any in history will be let loose'.

Apollo 8's impact was, though, immediate: with 'a remarkable suddenness, what had been a fairly abstract conception of an Earth without borders became startlingly clear' (Tribbe 2014: 77). On Christmas Day 1968, with Apollo 8 two days away from splashing down in the Pacific, a *New York Times* editorial was speculating that seeing earth from the moon 'may remake our image of mankind': 'To see the earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the earth together, brothers on that bright loveliness in the eternal cold – brothers who know now they are truly brothers' (MacLeish 1968). Apollo 8 was the first *manned* witnessing of 'earthrise' and provided the first images in colour of the spectacle – and yet, photographs are clearly only half the story here.

Although 'earthrise' is conventionally portrayed with the earth rising up above a horizontal lunar horizon, this was not how Anders first witnessed it. Early in 1969, the US Post Office Department hurried out a commemorative stamp (Scott#1371) which turned and rotated the moon's horizon to show the earth rising above it, with the words 'In the beginning God…' inserted in the space dividing the heavens and the earth (Fig. 2). This is instructive and arguably indicative of a wider cultural turn. Worded onto the six cent stamp were lines from the book of Genesis; these, in turn, had been worded over the TV images broadcast live from Apollo 8 just as Christmas Eve drew to a close across the United States, which 'put nearly every person on the face of the earth in orbit around the moon' (Zimmerman 1998: xii).

As much apposite as accidental, following an extended search for the right words (Oliver 2013: 143-148; Zimmerman 1998: 183-203), the Apollo 8 crew took turns in reading Genesis 1:1-10: 'a narrative of earth's creation offered by men viewing it afresh from the shores of another world' (Oliver 2013: 144). It was as if God had worded creation from the heavens and Apollo 8 was following suit, so to speak, voicing Genesis amid darkness and lifelessness. And the bright loveliness of life itself appeared as 'a grand oasis in the big vastness of space', as crew member Jim Lovell put it. In retrospect, Apollo 8's commander, Frank Borman, thought 'It turned out to be, from our vantage point at least, perfect – because you could see almost what the beginning was, and then of course in the distance was the … was the earth as it is today'.[4]

This God's-eye view of the beginning coincided with the celebration of another Christian beginning only a few hours later – Christmas – and the Apollo 8 crew were keenly aware of the timing and significance: 'A huge television audience saw the image on screen, and it harnessed to the Apollo mission the complex meanings attached to this key Christian festival – of peace and good will among all peoples, of domesticity and harmony, of rebirth and renewal' (Cosgrove 2001: 257). In this nexus, 'earthrise' afforded a novel perspective on the moment when the divine spirit sent down to earth from the heavens made its first appearance embodied in the newborn Christ Child.

'Earthrise' also participates in and extends a particular cosmographic genealogy in which 'Christ and Apollo are consistently conflated in Christian images' aspiring to a sun-like gaze 'which pulls diverse life on earth into a vision of unity … a divine and mastering view from a single perspective', as if 'braided together into a universalizing teleology of Western Christianity' (Cosgrove 2001: 57, xi). Rising ascent is vital here: 'the physical *body* of the risen Christ is central to this theological geography. Embodying the globe or world map is a recurrent feature of medieval Christian iconography' (Cosgrove 2001: 56; original emphasis).

'Earthrise' achieves this indwelling conflation of Apollo-Christ and sun-earth imagery through the substitution of the sun by the earth in rising up, and this transposition requires a horizon for the effect to work. Rotating Anders' photograph to make the earth rise up, combining this with the cosmographic wording of beginnings and newly created life revealed, remembering a silent night of stars leading to the birth of Jesus Christ and anticipating the post-crucifixion rise to heaven – talk about obviating a Western core symbol (Wagner 1986, and see Strathern 1992: 216 n.10). This synthesis and serendipity of the 'earthrise' moment as a symbolic obviation or turn of cultural perspective in a kind of luminous cosmographic supernova exploding into human consciousness is surely too fantastic. Or is it?

Gore's 'holography'

That these components truly belong together in Al Gore's vision of 'earthrise' is apparent from *An inconvenient truth* (2006: 12) and a 2008 interview for CBS's current affairs TV show *60 minutes* in which Gore is described as 'the popular prophet of global warming', and he jokingly describes his post-politics job as '"P.R." agent for the planet'.[5] Gore is shown re-editing his multimedia presentation for a Christian evangelical audience by adding text and dubbing audio over a photograph of 'earthrise': the words 'And God said, Let there be light: and there was light' (Genesis 1:3) and the voice of Anders speaking from above in lunar orbit, so as to emphasize a 'duty as human beings to be good stewards of the earth'.[6]

Spatial levitation, embodiment and the location of God play a core role in Gore's own beliefs: 'Why does it feel faintly heretical to a Christian to suppose that God is in us as human beings? Why do our children suppose that the Kingdom of God is *up*, somewhere in the ethereal reaches of space, far removed from this planet?' (Gore 1992: 264; original emphasis). Although Gore's questions about 'looking for the sacred everywhere except in the real world' (1992: 264) were common in space age theology (Oliver 2013) and in post-war holistic world views (Wood 2010), Gore himself was also raised in a Southern Baptist tradition in which belief in the life and story of Christ provides the inner story of the life of a believer (cf. Harding 1987). Gore's *Earth in the balance* (1992) is a provocative theological synthesis, combining a 'new age' self-spirituality location of

God inside man (ibid.: 264) with a commitment to both creationism (ibid.: 254) and a form of process theology (e.g. Cobb 1965; Whitehead 1926) whereby every human and non-human interaction is creation in the making.

Gore has written, carefully and at length, about what he calls his 'inner ecology' (1992: 241, 367): 'It is my own belief that the image of God can be seen in every corner of creation, but only faintly. By gathering in the mind's eye all of creation, one can perceive the image of the Creator vividly. Indeed, my understanding of how God is manifest in the world can be best conveyed through the metaphor of the hologram … Each tiny portion of the hologram contains a tiny representation of the entire three-dimensional image, but only faintly. However, due to the novel and unusual optical principles on which holography is based, when one looks not at a small portion but at the entire hologram, these thousands of tiny, faint images come together in the eye of the beholder as a single large, vivid image' (1992: 265).

Gore's particular design for holographic part-whole relations extends to ecology: 'The ecological perspective begins with a view of the whole, an understanding of how the various parts of nature interact in patterns that tend toward balance and persist over time' and 'we are part of the whole too, and looking at it ultimately means looking at ourselves. And if we do not see that the human part of nature has an increasingly powerful influence over the whole of nature – that we are, in effect, a natural force just like the winds and the tides – then we will not be able to see how dangerously we are threatening to push the earth out of balance' (1992: 2).

Earth in the balance imitates this holographic effect (Fig. 3) in a series of pixilated images of earth prefacing each of the book's three parts, accompanied by a resolved vivid image following the conclusion (1992: 369): new perceptions of relations constituting creation-in-the-making progressively reveal a moral vision and relationship with God. The book aims to bring us into a position where we can, as it were, see Creation from the perspective of the Creator – and in doing so, we see that one is a manifestation of the other. Gore's vision of these mutual indwellings reflect part-whole trinitarianism and his own faith 'rooted in the unshakeable belief in God as creator and sustainer, a deeply personal interpretation of and relationship with Christ, and an awareness of a constant and holy spiritual presence in all people, in all life, and all things' (1992: 368). Creation and the Creator are mutual manifestations, reciprocal reflections – 'earthrise' shows Gore the proper shape of a moral relationship for all people, for all life, and all things.

Gore's holography manages to reconcile ecology and theology, science and religion with impressive ease (cf. Latour 2009), and provides a provocative common method of analyzing everything and every kind of thing in the same breath – what Holbraad might call 'God as Actor Network, or something like it' (Holbraad 2004), or vice versa.

Mead's 'macroscope'

Another anthropological artefact of 'earthrise' is Margaret Mead's search for a cultural idea with which to make the world safe for difference. In 1972, Mead gave a graduation address in Maryland entitled 'Our shared atmosphere', and wrote a guest editorial entitled 'The shared atmosphere of this planet' (Mead 1972). The following year, Mead wrote about the prospects for world harmony: 'And it is only since we have been able to see the earth from the moon, that we have fully appreciated how small, how lonely, how vulnerable our earth is…But at the same time, the exploration of outer space has given us a new understanding of the atmosphere which surrounds and protects life on earth, and has given us a new region to share, in which there are no frontiers, no boundaries, no ways of barricaded one part off from another…the atmosphere is the air we all breathe together' ([1973] 2005: 285-286).

In 1975, Margaret Mead organized one of the very first international and interdisciplinary conferences on global climate change, entitled 'The atmosphere: Endangered and endangering', during which, James Lovelock gave an early digest of the Gaia hypothesis (Kellogg & Mead 1977). Mead clearly took and intended the atmosphere to be not so much a complex, changing and dynamic chemical system, but rather as a *cultural idea* (or 'metaphor'– see Valentine 2016: 514) with which humanity would be able to avoid the self-destruction of all life on earth.

If the atmosphere was the cultural idea Mead had been actively looking for, it was also something more: a kind of 'macroscope' as described in *World enough* (Mead & Heyman 1975). Mead borrowed the idea from a best-selling 1969 science fiction novel by Piers Anthony: the macroscope contains a large crystal able to detect a newly discovered type of particle, the 'macron', and to focus on any location in space-time with exceptional clarity – a kind of infinite telescope able to look anywhere in space, anywhere in time and at any scale. For example, a macroscope would have been able to see the earth clearly reflected on the metallic fuselage of Apollo 8 in lunar orbit – and would also be able to revisit that imagistic moment in time from the present day.

Mead wrote that 'This book is a new experiment, an attempt to create a "macroscope", a way of looking at and understanding something that is large, relatively unknown, and relatively unknowable, which, nevertheless, we need somehow to know. We are just beginning to think about the need for such a way of seeing to match the wonders of the microscope, which approaches the almost infinitely small, and the telescope, which brings us closer to the almost infinitely large …We need new instruments, new ways of seeing, new ways of hearing, and new ways of thinking about the whole world at once' (Mead & Heyman 1975: xxviii).

Mead also explains that anthropology has developed its own prototype macroscope device (ibid.: xxx-xxxi), capable of working across scale and widely different contexts: 'ethnographic description' (ibid.: xxxi). *World enough* is an ethnographic experiment in learning to see the whole world all at once, so to speak, a quest that 'learns the relationships of each person to each other person' such that 'the whole remains meaningfully interrelated' (ibid.: xxxi). No doubt 'earthrise' informed Mead's recognition that 'we now need a way of dealing with the total picture of the world, a way of both expanding our scope of vision and yet of sharpening the focus of our eyes and thought' (ibid.: xxix), and the suggestion here is that the atmosphere also serves a similar purpose.

Adze-rise

Despite the democratic globalizing claims to visions of the whole earth, the discussion above foregrounds the responses to 'earthrise' through a dominant Western cosmographic imagination, implying certain forms of mastering effects to ecological, social and theological relations. Therefore, I want to conclude with a decolonizing reminder of the diversity of visions of earth, the relations entailed and the responses being made to the climate crisis alongside the NASA space programmes (cf. Battaglia 2014).

NASA astronaut Lacy Veach grew up in Hawaii and was close friends with Polynesian Voyaging Society master navigator, Nainoa Thompson. In 1992, Veach was orbiting the earth on the space shuttle Columbia (STS-52) at the same time Thompson was sailing the double-hulled voyaging

canoe *Hōkūle'a* (star of gladness) on the No Nā Mamo (for the children) voyage to Rarotonga. They arranged to speak by satellite phone in a three-way call with schoolchildren at Punahou School in Honolulu. One time on Columbia, another astronaut woke Veach and told him they were passing Hawaii – Veach looked out and could see all the islands, and his whole spirit and soul in the dawn light. He told Thompson how: '"The sight of the islands took his breath away." He saw the islands and the planet in one vision – that planet earth was just an island like Hawai'i, in an ocean of space, and that we needed to take care of them both if the planet was to remain a life-giving home for humanity'.[7]

Veach had taken with him a stone adze from the Keanakako'i quarry high on the slopes of Mauna Kea – and was able to take a photo of the adze floating in space as they passed over Hawaii, with Mauna Kea visible in the cockpit window (Fig. 4). This 'adze-rise' vision of island earth makes specific cultural connections of its own, and challenges ideas about isolation and vulnerability, just as Epeli Hau'ofa's famous essay 'Our sea of islands' (1993) would do, the following year.

Both visions shrug off the privilege of colonial and heavenly perspectives: Veach said 'The best place to think about the fate of our planet is right here in the islands'.[8] Later in 1992, Veach joined Thompson on board the *Hōkūle'a* as it sailed from Moloka'i to O'ahu, and discussed plans for a worldwide voyage that would eventuate in the Mālama Honua (caring for island earth) voyage which circumnavigated the globe from 2014 to 2017. *Hōkūle'a* continues its own navigations by the stars, riding the waves on an island in space, sharing an Oceanic vision of how 'man lives in equivalence with the environment' (Tui Atua Efi 2014). ●

1. National Aeronautics and Space Administration.
2. https://epic.gsfc.nasa.gov.
3. https://youtu.be/dE-vOscpiNc.
4. NASA: Triumph and tragedy, 1: One small step. www.bbc.co.uk/iplayer/episode/b00lg2xb.
5. https://www.cbsnews.com/news/al-gores-new-campaign/.
6. https://web.archive.org/web/20080410141210/http://blog.algore.com/2008/03/a_moral_issue.html.
7. http://archive.hokulea.com/holokai/wwv/wwv_mission.html.
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Fig. 1. *'Earthrise' next time around, Apollo 8, orbit 5.*
Fig. 2. *US commemorative stamp (Scott#1371).*
Fig. 3. *Pixelated earth mosaic.*
Fig. 4. *'Adze-rise'.*